CLAIMS

What is claimed is:

1.   A method for simulating an array of flip flops including
metastable effects, said method comprising:

a) receiving a first set of values comprising a bit value for each flip flop
in a first rank of flip flops in said array, wherein said first set of values
represents input values for said first rank; and

b) computing an input value for each flip flop in a second rank of flip
flops in said array by selecting between a respective bit value from said first
set of values and a respective bit value from a second set of values, wherein
said second set of values represents bit values previously held by flip flops in
said first rank;

wherein said second rank receives a combination of bit values from
said first and second sets of values to simulate said metastable effects.

2.   The method as recited in Claim 1 further comprising:

receiving information defining a width and depth of said array, wherein
said width defines the number of flip flops in each rank of said array and
wherein said depth defines the number of ranks in said array.

3.   The method as recited in Claim 2 wherein said array represents
a plurality of chains of flip flops, wherein the number of flip flops in a chain
corresponds to said depth and wherein the number of chains corresponds to
said width.

4.   The method as recited in Claim 1 wherein said steps a) - b) are
performed for each of a plurality of simulated clock pulses.

5.   The method as recited in Claim 4 wherein said steps a) - b) are
performed at an edge of a simulated clock pulse.

6.   The method as recited in Claim 1 wherein said step b)
comprises:

generating a random number based on a seed number; and
selecting between a bit value from said first set of values and a bit value
from said second set of values using said random number.

7.   The method as recited in Claim 6 wherein a random number is generated for each of a plurality of simulated clock pulses, wherein each random number generated is used as a seed number for generating a subsequent random number.

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8.   The method as recited in Claim 1 further comprising:
synthesizing said array of flip flops, wherein said synthesizing is selectively turned on and off during said simulating.

10   9.   The method as recited in Claim 8 wherein said simulating is selectively turned on and off during said synthesizing.

10.   A computer system comprising:
a bus;
15   a memory unit coupled to said bus; and
a processor coupled to said bus, said processor for executing a method for simulating an array of flip flops including metastable effects, said method comprising:
a) receiving a first set of values comprising a bit value for each flip flop
20   in a first rank of flip flops in said array, wherein said first set of values represents input values for said first rank; and
b) computing an input value for each flip flop in a second rank of flip flops in said array by selecting between a respective bit value from said first set of values and a respective bit value from a second set of values, wherein
25   said second set of values represents bit values previously held by flip flops in said first rank;
wherein said second rank receives a combination of bit values from said first and second sets of values to simulate said metastable effects.

30   11.   The computer system of Claim 10 wherein said method further comprises:
receiving information defining a width and depth of said array, wherein said width defines the number of flip flops in each rank of said array and wherein said depth defines the number of ranks in said array.

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12.   The computer system of Claim 11 wherein said array represents a plurality of chains of flip flops, wherein the number of flip flops in a chain corresponds to said depth and wherein the number of chains corresponds to said width.

13.   The computer system of Claim 10 wherein said steps a) - b) of said method are performed for each of a plurality of simulated clock pulses.

5   14.   The computer system of Claim 13 wherein said steps a) - b) of said method are performed at an edge of a simulated clock pulse.

15.   The computer system of Claim 10 wherein said step b) of said method comprises:

10   generating a random number based on a seed number; and
        selecting between a bit value from said first set of values and a bit value from said second set of values using said random number.

16.   The computer system of Claim 15 wherein a random number is
15   generated for each of a plurality of simulated clock pulses, wherein each random number generated is used as a seed number for generating a subsequent random number.

17.   The computer system of Claim 10 wherein said method further
20   comprises:
        synthesizing said array of flip flops, wherein said synthesizing is selectively turned on and off during said simulating.

18.   The computer system of Claim 17 wherein said simulating of
25   said method is selectively turned on and off during said synthesizing.

19.   A computer usable medium having computer readable code stored thereon for causing a computer system to perform a method comprising:
30   a) receiving a first set of values comprising a bit value for each flip flop in a first rank of flip flops in an array, wherein said first set of values represents input values for said first rank; and
        b) computing an input value for each flip flop in a second rank of flip flops in said array by selecting between a respective bit value from said first
35   set of values and a respective bit value from a second set of values, wherein said second set of values represents bit values previously held by flip flops in said first rank;
        wherein said second rank receives a combination of bit values from said first and second sets of values to simulate metastable effects.

20.   The computer usable medium of Claim 19 wherein said computer-readable program code embodied therein causes a computer system to perform a method comprising:

5   receiving information defining a width and depth of said array, wherein said width defines the number of flip flops in each rank of said array and wherein said depth defines the number of ranks in said array.

21.   The computer usable medium of Claim 20 wherein said array

10   represents a plurality of chains of flip flops, wherein the number of flip flops in a chain corresponds to said depth and wherein the number of chains corresponds to said width.

22.   The computer usable medium of Claim 19 wherein said steps a)

15   - b) are performed for each of a plurality of simulated clock pulses.

23.   The computer usable medium of Claim 19 wherein said steps a) - b) are performed at an edge of a simulated clock pulse.

20   24.   The computer usable medium of Claim 19 wherein said computer-readable program code embodied therein causes a computer system to perform a method comprising:

        generating a random number based on a seed number; and

        selecting between a bit value from said first set of values and a bit value

25   from said second set of values using said random number.

25.   The computer usable medium of Claim 24 wherein a random number is generated for each of a plurality of simulated clock pulses, wherein each random number generated is used as a seed number for generating a

30   subsequent random number.

26.   The computer usable medium of Claim 19 wherein said computer-readable program code embodied therein causes a computer system to perform a method comprising:

35   synthesizing said array of flip flops, wherein said synthesizing is selectively turned on and off.

27.   The computer usable medium of Claim 26 wherein said steps a) - b) are for simulating said array of flip flops and wherein said simulating is selectively turned on and off during said synthesizing.